

TOLMACHEV, V.D., inzh.

Alignment of the diaphragms of a steam turbine with consideration
of the depression of the lower section of the cylinder. ^{Elek.}
sta. 32 no.7:74 J1 '61. (MIRA 14:10)
(Steam turbines)

TOIMACHEV, V. I., inzh. (st. Orsha-TSentral'naya, Belorusskoy dorogi)

Rail fastening in transportation. Put' i put. khoz. 6 no. 8:34
'62. (MIRA 15:10)

(Railroads--Rails--Transportation)

TOLMACHEV, V.I., inzh.

Rail welding on the track. Put' 1 put.khoz. 5 no.10:21-22 0 '61.
(MIRA 14:10)

(Railroads--Rails--Welding)

TOLMACHEV, V.I.

Loading of rails in packages. Put' i put.khoz. 6 no.12:29
'62. (MIRA 16:1)

1. Inzhener rel'sosvarochnogo poyezda, stantsiya Orsha, Belorusskoy
dorogi.

(Railroads--Rails).

(Loading and unloading--Equipment and supplies)

TOLMACHEV, V.I., inzh. (st. Orsha, Belorusskoy dorogi)

Ultrasonics inspect the quality of welding. Put'i put.khoz.
5 no.5:17 My '61. (MIRA 14:6)

(Welding--Testing) (Ultrasonic waves--Industrial application)

L 33384-66 EMI(d)/... (1)/EMP(m)/... (n)

ACC NR: AP6021489

SOURCE CODE: UR/0413/66/000/011/0140/0140

INVENTOR: Antonov, O. K.; Anisenko, V. G.; Bolbot, A. V.; Yeroshin, V. F.; Ryshik, Ya. I.; Tolmachev, V. I.

ORG: none

TITLE: Method of compensating for the aerodynamic asymmetry of propeller aircraft.
Class 62, No. 182528

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 140

TOPIC TAGS: aerodynamic control, gas turbine engine, aircraft auxiliary engine, asymmetric body

ABSTRACT: An Author Certificate has been issued for a method of compensating for the aerodynamic asymmetry of propeller aircraft. For the purpose of increasing flight safety and simplifying flying technique, aerodynamic asymmetry is decreased by the thrust of an auxiliary gas-turbine engine (1). This creates a moment opposite

Cerd 1/2

UDC: 629.135/138

ACC NR: AP6021489

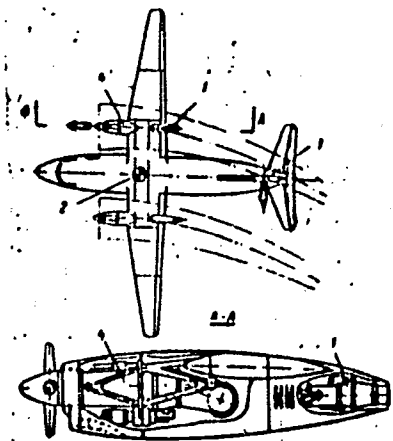


Fig. 1. Compensating for aerodynamic asymmetry

1 - Auxiliary gas-turbine engine; 2 - center of gravity; 3 - vertical tail surfaces; 4 - main power plant

to the moment indicated (see Fig. 1), which is caused by an asymmetric blast on the vertical tail (3) surfaces by the airflow from the main power plant (4). Orig. art. has: 1 figure. [WS]

SUB CODE: 01, 21/ SUBM DATE: 13Oct65/ ATD PRESS: 5042

Card 2/2

ACC NR: AT7003996

SOURCE CODE: UR/0000/66/000/000/0098/0104

AUTHOR: Butakov, L. D.; Lashuk, N. A.; Solntsev, B. A.; Tolmachev, V. I.

ORG: Scientific Research Institute of Nuclear Physics, Electronics, and Automation, Tomsk Polytechnic Institute (Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri TPI)

TITLE: High-frequency system for operating an electron synchrotron as a proton-synchrotron

SOURCE: Mezhvuzovskaya konferentsiya po elektronnyim uskoritelyam. 5th, Tomsk, 1964. Elektronnyye uskoriteli (Electron accelerators); trudy konferentsii. Moscow, Atomizdat, 1966, 98-104

TOPIC TAGS: synchrotron, proton, ~~synchrotron~~ *electron*

ABSTRACT: Wide passband and high voltages do not permit using conventional proton-synchrotron-tape aperiodic accelerating systems. Nor can drift tubes or accelerating transformers be used. Hence, two variants of a special accelerator are proposed:

(1) Two closely coupled and shunted toroidal resonators (see Fig. 1) and (2) A system of ring electrodes (see Fig. 2). The entire frequency deviation is 9 Mc, and the frequency by the end of the cycle is 36 Mc. The hf channel is divided into two subchannels: a 1.2-Mc one covering most of the cycle and a wide-band one covering the initial part of the cycle. In the ring-electrode design, all long lines are supplied

Card 1/2

ACC NR: AT7003996

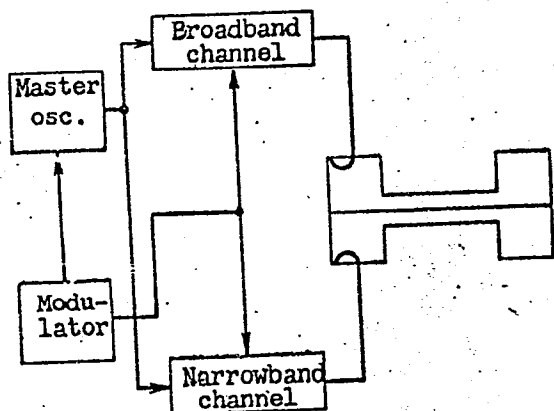


Fig. 1. Two-coupled resonator hf system

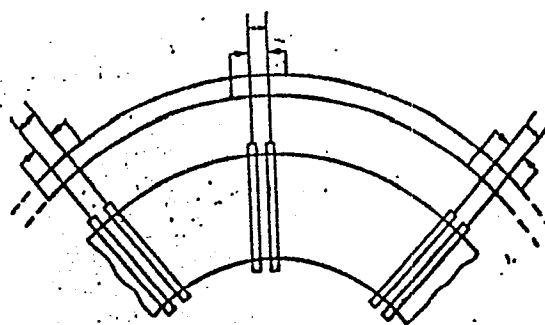


Fig. 2. Ring-electrode hf system

by a common feeder system. Some details of the electronic equipment are given.
Orig. art. has: 8 figures and 6 formulas.

SUB CODE: 09, 20 / SUBM DATE: 06Mar66

Card 2/2

TOLMACHEV, V.K., inzhener.

Adjusting accessory equipment of boiler installations. ~~Energotik~~
4 no.11:16-19 N '56. (MIRA 9:2)
(Boilers--Accessories)

TOLMACHEV, V.K., inzh; SHIVCHENKO, D.K., inzh

Improving the boiler-feeding devices. Elek.sta. 29 no.9:70-72
29 no.9:70-72 S '58. (MIRA 11:11)
(Boilers)

TOLMACHEV, V.K., inzhener.

Indicators of the causticity of boiler water. *Energetik* 4 no.12:17
D '56. (MIRA 10:1)

(Feed water) (Boilers--Accessories)

TOIMACHEV, V.K., inzhener.

Eliminating a defect of the safety valve. Energetik 4 no.9:9-10 S '56.
(Boilers--Safety appliances) (MIRA 9:10)

TOIMACHEV, V.K., inzh.

~~Device for machining valve seats. Energetik 5 no.9:13-14 S '57.~~

(MIRA 10:10)

(Boilers)

TOLMACHEV, V.K., inzh.

Improving the moist coal track in boiler installations. *Energetik* 5
no.10:7-8 0 '57. (MIRA 10:12)

(Boilers)

BABENKO, A. S.; TOLMACHEV, V. N.

Complex formation in the system copper ion - nitron - rhodanide.

Part 6: Composition and absorption spectra of the nitron-rhodanide complex of copper (II) in dichloroethane. Ukr. khim. zhur. 28 no.6:659-663 '62. (MIRA 15:10)

1. Khar'kovskiy politekhnicheskii institut im. V. I. Lenina.

(Copper compounds—Spectra)
(Thiocyano compounds)

BABENKO, A. S.; TOLMACHEV, V. N.

Complex compounds in the system copper ion - nitron - thiocyanate.
Part 4: Preparation of complexes and study of extractibility of
copper (II) complexes by dichloroethane. Ukr. khim. zhur. 28
no.3:287-293 '62. (MIRA 15:10)

1. Khar'kovskiy politekhnicheskii institut im. V. I. Lenina.

(Copper compounds) (Extraction(Chemistry))
(Ethane)

TOLMACHEV, V. N.; BABENKO, A. S.

Complex formation in the system cobalt ion - nitron - thiocyanate.
Composition and absorption spectra of the nitron-thiocyanate
complex of cobalt in dichloroethane. Ukr. khim. zhur. 28 no.5:
550-555 '62. (MIRA 15:10)

1. Khar'kovskiy politekhnicheskii institut im. V. I. Lenina.

(Cobalt compounds—Spectra) (Nitron)
(Thiocyanates)

TOLMACHEV, V. N.; BABENKO, A. S.

Complex formation in the system trivalent iron ion - nitron -
rhodanide. Part 7: Composition and absorption spectra of the
nitron - rhodanide complex of iron in dichloroethane. Ukr.
khim. zhur. 28 no.6:664-668 '62. (MIRA 15:10)

1. Khar'kovskiy politekhnicheskii institut im. V. I. Lenina.

(Iron compounds—Spectra)
(Thiocyano compounds)

TOLMACHEV, V. N.

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PROCESSES AND PROPERTIES INDEX

***The Solubility Limits of Metallic Solid Solutions. I. - Determination of the Solubility of Antimony in Lead. K. E. Cherkashin and V. N. Tolmachev (Trudy Inst. Khim. Khar'kov. gosudarst. Univ., 1940, 5, 263-271; Khim. Referat. Zhur., 1941, 4, (9), 33; C. Abstr., 1943, 28, 011). [In Russian.]** Solid solutions of antimony in lead (0.5, 1.0, and 1.5% antimony) were studied by constructing tensile strength isotherms. It was proved experimentally that the boundary of the single-phase system is characterized by a distinct break on the isotherm. The boundaries of the solid solution determined at various temperatures by this method agree well with those given in the literature. The applicability of the method to the determination of the solubility curve in binary systems was confirmed.

AS-555.4 METALLURGICAL LITERATURE CLASSIFICATION

582.221-42.014.022

582.221-42.014.022

582.221-42.014.022

1ST AND 2ND CROSS										3RD AND 4TH CROSS									
PROCESS AND PROPERTIES INDEX																			
CA		<p>1. Tolmachev, V.N. The saturation boundaries of monatomic solid solutions. I. Determination of the solubility of Sb in Pb by the explosion method: E. B. Chertashin and V. N. Tolmachev. <i>Trudy Inst. Khim. Khar'kov. Gosudar. Univ.</i> 9, 263-71; <i>Khim. Refrat. Zhur.</i> 4, No. 9, 25(1941).—Solid solns. of Sb in Pb (0.5, 1.0 and 1.5% of Sb) were studied by constructing temporary tensile-strength polytherms. It was proved exply. that the boundary of the uniphase system is characterized by a distinct break on the polytherm. The boundaries of the solid soln. detd. at various temps. by this method agree well with those given in the literature. The applicability of the method to the detn. of the solidus curve in binary systems was checked.</p> <p>W. R. Henn</p>																	
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ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION																			
REGION SYMBOLISM										REGION NOMINATV									
CROSSING NO. 1										CROSSING NO. 2									

CM

TOLMACHEV, V.N.

Colored cobalt compounds of analytical significance. 1. Cobalto- π -nitroso- β -naphtholate. N. P. Komar and V. N. Tolmachev (A.M. Gor'ki State Univ., Kharkov). *Zh. Anal. Khim.* 5, 21-7 (1950). By use of the Job procedure (C.A. 22, 2129) and working with various concns. of Co^{++} and nitroso-naphthol, the max. optical d. of the solns. always coincided when the Co^{++} :nitroso-naphthol ratio was 1:2. The formula of this complex is $\text{Co}(\text{C}_{10}\text{H}_7\text{ONO})_2$. By using a Vendt (C.I. 32, 1082) photocolormeter to det. the optical d. of solns. with varying quantities of the 2 ions, the equil. const. of this comp. was calcd. as 5×10^{-11} . When the combined soln. had an excess of Co^{++} , the exptl. results agreed well with the calcd., but in the case of an excess of nitroso-naphthol the exptl. results were considerably higher. This is attributed to the formation of $\text{Co}(\text{C}_{10}\text{H}_7\text{ONO})_3$ having a soly. product of approx. 2×10^{-11} . When this method for detg. Co^{++} is used and the results are obtained from empirical calibration curves, the error is likely to exceed 10%.

M. Hosh

TOLMACHEV, V. N.
USSR/Chemistry - Spectral analysis

Card : 1/1

Authors : Tolmachev, V. N., and Korobka, L. A.

Title : Spectrophotometric investigation of reactions having importance in colorimetry. Part 1.- Complex compounds formed by nickel ions with 2-nitroso-1-naphthol-4-sodium sulfonate.

Periodical : Zhur. Anal. Khim., 9, Ed. 3, 134 - 140, May-June 1954

Abstract : Data are presented on the reaction of complex formation, which takes place between nickel ions and 2-nitroso-1-naphthol-4-sodium sulfonate. The formation of two complexes - NiR^+ and NiR_2^- in solutions containing Ni^{2+} -ions and 2-nitroso-1-naphthol-4-sulfonate-ions is explained. Molar extinction coefficients and the instability constants of these complexes were determined in relation to the pH value of the solution. Thirteen references: 7-USSR, 2-German, 1-English, 1-Czech and 2-French. Tables; graphs.

Institution : State University, Scient. Research Institute of Chemistry, Kharkov

Submitted : Febr. 8, 1954

TOLMACHEV, V. N.

3714. The photocolometric determination of molybdenum with phenylhydrazine. V. N. Tolmachev and V. G. Ostroverkhov. *Uch. Zap. Kharkov. Univ.*, 1954, 54; *Trudy Nauch. Issledovatel. Inst. Khim., Kh.G.U.*, (12), 209-271; *Ref. Zhur., Khim.*, 1955, (19), Abstr. No. 43,251.

Chem

The applicability of the method for the analysis of different types of steel is indicated. Prepare standards from a soln. of $(\text{NH}_4)_2\text{MoO}_4$. To 10 ml of the soln. obtained add 3-5 to 6 ml of H_2SO_4 (sp. gr. 1.41) and 6 to 8 ml of phenylhydrazine (I) (0.09 g per ml). Boil the mixtures for 1 min., cool and dilute to 100 ml. Measure the extinction with the Vendt photocolorimeter (*Zhur. Obshch. Khim.*, 1937, 18, 2423). A blank is carried out at the same time. The concn. of Mo in the soln. must be within 1 to 7 μg per ml. Dissolve the steel samples by heating with 40 ml of H_2SO_4 (10 ml of H_2SO_4 (sp. gr. 1.41) plus 21 ml of H_2O); in some cases conc. HNO_3 must be added. Evaporate the soln. to a smaller vol., add 70 ml of 20 per cent. alkali, cool, dilute to 200 ml and filter after 30 min. Neutralise 10 to 20 ml of filtrate with H_2SO_4 (sp. gr. 1.41) (25 to 30 ml) and evaporate to 10 ml. The standardisation of all processes (particularly the heating) and complete removal of HNO_3 promotes reproducibility and accuracy of results. C. D. KOPKIN

PM

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TOLMACHEV, V. N.

USSR/Physical Chemistry - Solutions, Theory of Acids and Bases, B-11

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61140

Author: Tolmachev, V. N., Serpukhova, L. N.

Institution: None

Title: Spectrophotometric Investigation of Equilibria in Aqueous Solutions Containing Ammonium Vanadate and Hydrogen Peroxide

Original

Periodical: Zh. fiz. khimii, 1956, 30, No 1, 134-141

Abstract: By the spectrophotometric method were investigated equilibria in aqueous solutions of ammonium vanadate at different pH. It was ascertained that at pH from 9 to strongly acidic media coloration is observed with pH from 5 to 3. On the basis of correlation between optical density and pH at different wave lengths the authors consider that $V_2O_7H_3^-$ ions are formed which are converted on subsequent acidification to colorless VO_2^+ ions. Determined were equilibrium constants at 20° : of reaction $2VO_4H_2^- + H^+ \rightleftharpoons V_2O_7H_3^- + H_2O$, $k = (2.0 \pm 0.8) \cdot 10^{-10}$, of reaction $V_2O_7H_3^- + 3H^+ \rightleftharpoons 2VO_2^+ + 3H_2O$,

Card 1/2

USSR/Physical Chemistry - Solutions. Theory of Acids and Bases, B-11

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61140

Abstract: $k = (2.0 \pm 0.5) \cdot 10^4$. Investigation was carried out by interaction between ammonium vanadate and hydrogen peroxide. Ascertained was the presence of a colored compound at $\text{pH} \sim 2.4$. From absorption spectra were determined the equilibrium constants of reactions:
 $\text{VO}_2^+ + 2\text{H}^+ \rightleftharpoons \text{VO}^{3+} + \text{H}_2\text{O}$, $k = (6.2 \pm 1.8) \cdot 10^2$; $\text{VO}^{3+} + \text{H}_2\text{O}_2 \rightleftharpoons (\text{VO} \cdot \text{H}_2\text{O}_2)^{3+}$, $k = (1.3 \pm 0.5) \cdot 10^4$.

Card 2/2

TOLMACHEV, V.N.; KHUKHRYANSKIY, A.E.

Turbidimetric method of determining sulfuric acid in baths for
chromium-plating. Uch.zap. KHGU 71:107-109 '56. (MLRA 10:8)
(Sulfuric acid) (Chromium plating)

TOLMACHEV, V.M.; LOMAKINA, G.G.

Investigation of errors in the spectrographic method for obtaining
absorption spectra of solutions in the ultraviolet region. Uch.zap.
KHGU 71:111-118 '56. (MIRA 10:8)
(Spectrum analysis)

TOIMACHEV, V.N.; VESTFRID, TS.Yu.

Spectrophotometric analysis of the interreactions between zinc ions and purpuric acid. Zhur. neorg. khim. 2 no.1:60-64 Ja '57

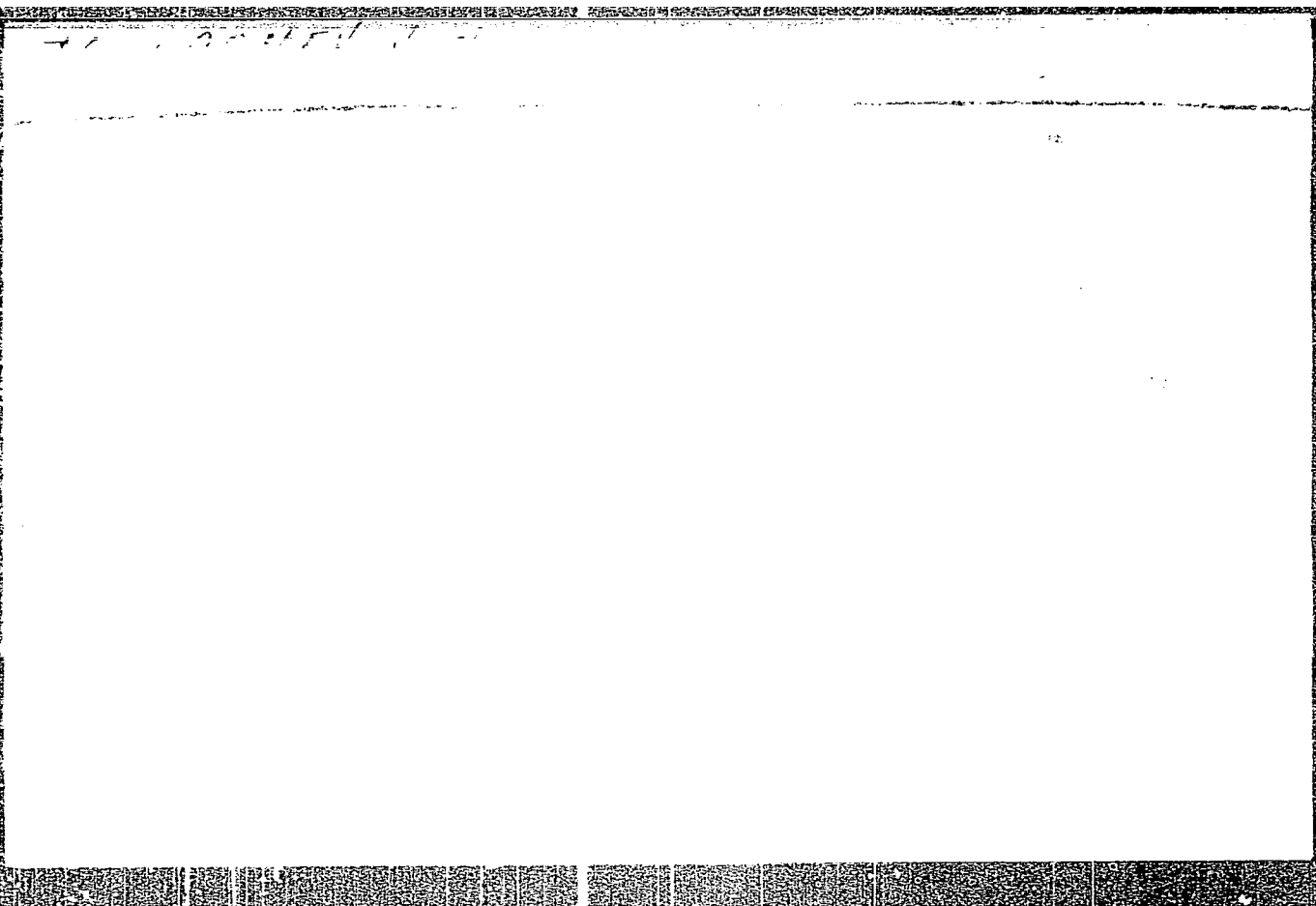
1. Nauchno-issledovatel'skiy institut khimii Khar'kovskogo gosudarstvennogo universiteta im. A.M. Gor'kogo.
(Purpuric acid) (Zinc compounds)

CIA-RDP86-00513R001756110011-8

CIA-RDP86-00513R001756110011-8"

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110011-8



APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756110011-8"

TOIMACHEV, V.N.; LOMAKINA, G.G.

Spectrophotometric determination of the dissociation constants of sodium 1,8 dioxy-2-(2-oxyazobenzene)-3,6-naphthalene disulfonate. [with summary in English]. Zhur. fiz. khim. 31 no.5:1027-1032 My '57. (MIRA 10:11)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Chemical tests and reagents)
(Sodium organic compounds)

TOLMACHEV, V.N.

Relationships between the absorption spectra of complex compounds
and their strength. Uch. zap. KHGU 95:153-166 '57.

(Complex compounds--Spectra)

(MIRA 12:10)

Category: USSR/Fitting Out of Laboratories. Instruments, Their Theory, H.
Construction and Use

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 31120

Author : Tolmachev V. N., Lomakina G. G.

Inst : Khar'kov University

Title : Study of Errors of Spectrographic Method of Securing Absorption
Spectra of Solutions in the Ultraviolet Region.

Orig Pub: Uch. zap. Khar'kovsk. un-ta, 1956, 71, 111-118

Abstract: It was ascertained experimentally, that on continuous operation of a spark generator, assembled according to the simplest scheme, during the recording of blackening marks and spectra under study on the same plate, the relative error in blackening of spectrum lines does not exceed 2-4%. By means of standard solutions of sodium picrate and potassium chromate it was found that errors in optical densities of the solutions do not exceed errors in blackening of lines. It was ascertained that these errors increase with decreasing exposure.

Card : 1/1

Tolmachev, V. N.

TOLMACHEV, V.N.; LOMAKINA, G.G.

Spectrophotometric investigation of the interaction between sodium 1,8-dioxy-2-(2'-oxyazobenzene)-3,6-naphthalenedisulfonate and magnesium ions (with summary in English). Zhur.fiz.khim, 31 no.7:1600-1605 J1 '57. (MIRA 10:12)

1. Khar'kovskiy universitet im. A.M.Gor'kogo i Khar'kovskiy institut Sovetskoy trgovli.

(Spectrophotometry) (Sodium salts) (Magnesium)

TOIMACHEV, V.N.

TOIMACHEV, V.N.; SERPUKHOVA, L.N.; SAMOYLOV, V.P.

Studying the structure, stability, and absorption spectra of
complexes formed in acetone by cobalt (II) ions with nitrate
ions and diantipyrilmethane. Zhur.neorg.khim. 2 no.9:2078-2084
S '57.
(MIRA 10:12)

1.Nauchno-issledovatel'skiy institut khimii Khar'kovskogo
gosudarstvennogo universiteta im. A.M. Gor'kogo.
(Complex compounds)

TOLMACHEV, V.N.; PODOL'NAYA, G.N.; SERPUKHOVA, L.N.

Spectrophotometric analysis of the interaction between ions of
ferrous oxide and sodium 2-nitroso-1-naphthol-4-sulfonate.
Zhur.neorg.khim. 2 no.9:2073-2077 S '57. (MIRA 10:12)

1.Nauchno-issledovatel'skiy institut khimii Khar'kovskogo
gosudarstvennogo universiteta im. A.M. Gor'kogo.
(Iron oxides) (Sulfonic acids) (Spectrophotometry)

ADAMOVICH, Leonid Petrovich; TOIMACHEV, V.N., otvetstvennyy red.;
BAZILIYANSKAYA, I.L., red.; CHERNYSHENKO, Ya.F., tekhn. red.

[Laboratory manual in qualitative analysis] Rukovodstvo k laboratornym zaniatiyam po kachestvennomu analizu. Khar'kov, Izd-vo Khar'kovskogo ordena trudovogo krasnogo znameni gos. univ. im. A.M. Gor'kogo, 1958. 115 p. (MIRA 11:9)
(Chemistry, Analytical--Qualitative)

AUTHORS: Tolmachev, V. N., Kirzhner, O. M. SOV/75-13-4-9/29

TITLE: On the Possibility of Applying Murexide as a Reagent for the Photometric Determination of Zinc (O vozmozhnosti primeneniya mureksida v kachestve reaktiva dlya fotometricheskogo opredeleniya tsinka)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol.13, Nr 4, pp. 430-433 (USSR)

ABSTRACT: Relatively few good reactions are known for the photometric determination of zinc (Ref 1) and even these are not free from shortcomings (Ref 2). Murexide, the ammonium salt of purpuric acid, can be used for the determination of zinc by photometric methods. Murexide reacts with the ions of many metals (Refs 5, 6, 12, 13). As reaction product with zinc ions the stable complex

$$\text{Zn}(\text{H}_2\text{R})_2^{2-}$$

develops, the stability constant of which is $K=4,8 \cdot 10^{-10}$ (Ref 14). The absorption band of the complex ($\lambda_{\text{max}}=455\text{m}\mu$) is far removed from the absorption band of pure murexide

Card 1/4

SOV/75-13-4-9/29

On the Possibility of Applying Murexide as a Reagent for the Photometric Determination of Zinc

($\lambda_{\text{max}} = 520\text{m}\mu$). The molar absorption coefficient of the complex E_{max} is 40 000. Murexide was synthesized as uric acid (Ref 15) by the authors. It was then carefully cleaned. The photometric measurements were carried out on a spectrodensograph (Ref 16) and on a photometer of the type Φ M. In measurements of the optical densities by light filters Nr 5 ($\lambda_{\text{max}} = 525\text{m}\mu$) the relative deviations did not exceed 0,6-0,7%, when using light filters Nr 7 ($\lambda_{\text{max}} = 455\text{m}\mu$) the deviations were higher. The solutions of murexide are unstable, especially in the acid and alkaline range. If the pH-value is 6-8, the solutions are usable for a few hours. In buffered solution the stability increases a little. The optical densities of the solutions when containing zinc ions remain constant for 30-45 minutes. The reaction reaches the highest sensitivity at a pH of 10-11, but the stability of the colored solution in this range is very low. Therefore the authors worked at a pH-value of 7,5, which was adjusted by a Veronal buffer (Ref 17). Under these conditions the solutions follow the law of Beer up to concentrations of

Card 2/4

SOV/75-13-4-9/29

On the Possibility of Applying Murexide as a Reagent for the Photometric Determination of Zinc

zinc of $1,5 \cdot 10^{-4}$ mol/l, if the concentration of murexide in the solution is $7,5 \cdot 10^{-4}$ mol/l. Therefore the determination according to this method is applicable for concentration ratios of $c_{Mn} : c_{Zn} \gg 5$. The determination of zinc is already possible at concentrations of $2 \cdot 10^{-5}$ mol/l. The sensitivity of the reaction increases with a rising pH-value. The relative errors in the determinations of zinc in medium concentrations do not exceed $\pm 3\%$. However, as murexide has a poor selectivity, the applicability of this method for determining zinc in natural objects is limited. The possibility of application was investigated at the example of some aluminum alloys which contained copper and chromium apart from aluminum and zinc. It became evident that the described method can be applied at high pH-values (>10). There are 3 figures, 2 tables, and 18 references, 11 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo
Card 3/4 (Khar'kov State University imeni A.M. Gor'kiy)

SOV/75-13-4-9/29

. On the Possibility of Applying Murexide as a Reagent for the Photometric Determination of Zinc

SUBMITTED August 13, 1956

- | | |
|------------------------|----------------------------------|
| 1. Zinc--Determination | 2. Murexide---Chemical reactions |
| 3. Reagents--Synthesis | 4. Photometry---Applications |

Card 4/4

32-24-6-13/44

AUTHORS: Lomakina, G.G., ~~Tolmachev, V.N.~~,
Shimanskaya, M.V., Slavinskaya, V.A.

TITLE: News in Brief (Korotkiye soobshcheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 6, p. 694 (USSR)

ABSTRACT: G.G. Lomakina and V.N. Tolmachev of Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet) recommend the application of acid chromium dark-blue as a coloring agent for colorimetric determinations of magnesium- and aluminum alloys. Together with magnesium this coloring agent forms a colored complex of the composition MgR_2 . The most sensitive reaction is attained with $pH = 9.5 - 10.5$, in which case the relative error is $0.5 - 3.5\%$, and sensitivity increases with an increased purity of the coloring agent. The calibration curves can be plotted according to solutions of magnesium chloride of etalon samples of aluminum alloys.

M.V. Shimanskaya and V.A. Slavinskaya of the Institute of Organic Chemistry of the Academy of Sciences, Latvian SSR (Institut organicheskoy khimii Akademii nauk Latvyskoy SSR) suggested a method of photocolorimetric quantitative determination of

Card 1/2

News in Brief

32-24-6-13/44

furfurol in the presence of aliphatic aldehydes of carboxylic acids. The well-known reaction between furfurole and acetic acid aniline is used and the method of investigation developed by Ponomarev is employed on this occasion. After reaction lasting 1^h45' at 15° between a sodium chloride-, acetic acid-, and aniline solution with furfurole, the solution is colorimetrized on a photocolormeter FEK-M with a green light filter. The weight-limit ratios between furfurole and formic- and maleic acid, formaldehyde and acetic aldehyde which do not act upon the optical density of the coloring of the compound of furfurole with acetic acid aniline are determined.

1. Magnesium--Determination
2. Aluminum alloys--Determination
3. Colorimetry
4. Furfurals--Quantitative analysis

Card 2/2

TOLMACHEV, V.N.; SERPUKHOVA, L.N.

Spectrophotometric determination of cobalt and iron using sodium ester of 2,1,4-nitroso-sulfophthalic acid as reagent. Trudy kon. anal. khim. 8:115-124 '58. (MIRA 11:8)

1. Nauchno-Issledovatel'skiy institut khimii Khar'kovskogo gosudarstvennogo universiteta im. A.M. Gor'kogo.
(Cobalt--Spectra) (Iron--Spectra) (Phthalic acid)

5(4)

AUTHORS:

Tolmachev, V. N., Lomakina, G. G., Shtuchkina, L. A. SOV/76-33-4-9/32

TITLE:

Spectrophotometric Investigation of the Reaction Between Sodium-1,8-dioxy-2-(2'-oxyazobenzene)-3,6-naphthalene Disulphonate With Zinc Ions (Spektrofotometricheskoye issledovaniye reaktsii vzaimodeystviya 1,8-diksi-2-(2'-oksiazobenzol)-3,6-naftalindisul'fonata natriya s ionami tsinka)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 808-812 (USSR)

ABSTRACT:

It was already found (Ref 1) that compound (I) mentioned in the title (the so-called acid chrome dark blue) forms a stable complex compound with magnesium which made it possible to elaborate a colorimetric Mg-determination in aluminum alloys (Ref 2). In the present case the reaction of the dye with zinc was investigated by means of the working method (Refs 1, 3) already described. $ZnSO_4$ was used and the absorption curves of the solutions with (I) were recorded at different zinc concentrations (Fig 1) at a pH = 9.2, 10.3 and 11.5. The diagram shows that all absorption curves intersect each other at one point ($\lambda = 590 \text{ m}\mu$) which indicates a certain equilibrium

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SOV/76-33-4-9/32

Spectrophotometric Investigation of the Reaction Between Sodium-1,8-dioxy-2-(2'-oxyazobenzene)-3,6-naphthalene Disulphonate With Zinc Ions

in the solution. It was found that the maximum optical density is attained at $\text{pH} \approx 10$. The coefficient of molar absorption of the complex compound ($\epsilon = 45,400 \pm 900$) and the value of the instability constant for the radical ZnR_2^{6-} $K = 3.3 \cdot 10^{-11}$

were found from the measurements of the optical density and the pH of the solutions (Table) according to an equation (12) for $\lambda = 570 \text{ m}\mu$. On the basis of the experimental data obtained it is assumed that (I) may be used for the colorimetric determinations of zinc. There are 4 figures, 1 table, and 7 references, 5 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: September 9, 1957

Card 2/2

TOLMACHEV, V.N.; KIRZHNER, O.M.

Use of murexide as a reagent for the photometric determination of zinc [with summary in English]. Zhur.anal.khim. 13 no.4:430-433
Jl-Ag '58. (MIRA 11:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Zinc) (Photometry) (Murexide)

SOV/137-59-1-2144

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 281 (USSR)

AUTHORS: Tolmachev, V. N., Serpukhova, L. N.

TITLE: Spectrophotometric Method for Determining Cobalt and Iron With Sodium 2-, 1-, and 4-Nitrosonaphtholsulfonate (Spektrofotometricheskiy metod opredeleniya kobal'ta i zheleza pri pomoshchi 2, 1, 4-nitrozonaftolsul'fonata natriya)

PERIODICAL: Tr. Komis. po analit, khimii AN SSSR, 1958, Vol 8(11), pp 115-124

ABSTRACT: The authors have developed a spectrophotometric method for determining Co and Fe, when both are present, with a nitroso-H salt (I) which forms colored complexes with them. Calibration curves are adduced. In practice the analysis is carried out in the following way: Two 5 cc portions of the solution analyzed are taken, and 5 cc of pH 5.6 buffer solution and 5 cc of I solution are added to each. 0.5 cc of water are added to one of the solutions, whereupon it is read colorimetrically at 660 m μ to determine the Fe concentration; into the other 0.5 cc HCl (1:1) are added, whereupon it is read colorimetrically at 520 m μ to determine the concentration of Co. The

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SOV/137-59-1-2144

Spectrophotometric Method for Determining Cobalt and Iron With Sodium (cont.)

error of the determination is 2-4% (relative).

K. K.

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TOLMACHEV V. N.

5(4)

AUTHORS:

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Vasil'yev, V. P., Korableva, V. D.,
Yatsimirskiy, K. B.

SOV/153-58-3-30/30

TITLE:

Conference Discussion on the Methods of Investigating the
Complex Formation in Solutions (Soveshchaniye-diskussiya
po metodam izucheniya kompleksobrazovaniya v rastvorakh)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, 1958, Nr 3, pp 173 - 174 (USSR)

ABSTRACT:

From February 18 to 21, 1958 a conference discussion took
place at the town of Ivanovo; it dealt with the subjects
mentioned in the title. It was called on a decision of the
VIIth All-Union Conference on the Chemistry of Complex
Formations. More than 200 persons attended the conference,
among them 103 delegates from various towns of the USSR.
At the conference methods of determining the composition of
the complexes in solutions were discussed, as well as the
methods of calculating the instability constants according
to experimental data and problems concerning the influence
of the solvent upon the processes of complex formation.
I. I. Chernyayev, Member, Academy of Sciences, USSR, stressed
in his inaugural lecture the great importance and actuality

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of the problems to be dealt with, and wished the conference all the best in its work. I. V. Tananayev, on behalf of the Orgkomitet (Organization Committee) held a lecture on: "The Method of Determining the Composition of Compounds Formed in Solutions". In his lecture, V. N. Tolmachev dealt with the problem of the graphical interpretation of the method by Ostromyslenskiy-Zhob. It was proved that this method can also be used in such cases where the equilibrium of complex formation was turned complex by the hydrolysis or dimerization of the central ion. In the lecture by A. K. Babko and M. M. Tananayko, "Physical and Chemical Analysis of the Systems With 3 Colored Complexes in the Solution", the results of a systematic investigation in copper-quinoline-salicylate, as well as in copper-pyridine-salicylate systems by means of the optical method were dealt with. In the lecture by Ya. A. Fialkov the idea of a further investigation of the complex formation processes in solutions was developed. Besides the determination of the composition and stability of the complexes also the physical and chemical properties, the chemical nature and the structure of the complex compounds must be investi-

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gated. The lecture by K. B. Yatsimirskiy dealt with the conditions of checking the usefulness of the method of isomolar series in the determination of the complex composition. To be able to obtain objective results the position of the maximum at various concentrations of the components must be checked. A. K. Babko made several critical remarks concerning the lecture by I. V. Tananayev. He pointed out that such a method of investigation must be chosen that is connected with the characteristic properties of the system investigated. A. P. Komar' mentioned in his lecture that for the time being the method by Ostromyslenskiy-Zhob is the best for determining the complex composition, and should be employed as often as possible. This demands, however, that all instructions concerning this method are strictly obeyed. I. S. Mustafin, L. P. Adamovich and V. I. Kuznetsov took part in the discussion. K. B. Yatsimirskiy proved in his lecture "Hydrolytic Equilibria and the Polymerization in Solutions" that, if the hydrolysis products are polymerized, the "inclusion into the complex" and the "formation function" at a constant pH value are varied with the modification of the total concentration of

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the metal. Therefore all those methods may be employed for investigating the polymerization of this type which make the determination of at least one of the two functions mentioned possible. It was proved that the hypotheses on the existence of complexes of the type "nucleus + chain members" can also be founded from the viewpoint of structural concepts: particles the charge of which does not exceed unity can occur as "chain members". The usefulness of the characterization of areas of existence of polymers by means of surface diagrams: "total concentration of the metal - pH" was proved as well. I. I. Alekseyeva and K. B. Yatsimirskiy in their lecture "Investigation of the Polymerization of Iso-Poly Acids in Solutions" mentioned experimental results of the investigation of the polymerization in solutions of molybdic acid. The authors proved that especially the molybdic acid within a certain range of the pH values and the concentrations exists as a number of compounds that can be expressed by an overall formula $\text{MoO}_4(\text{HMoO}_4)^{n-2}$. In the lecture by N. V. Aksel'rud and V. B. Spivakovskiy investigation results on basic salts taking into

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account the complex formation in solutions by means of the potentiometric method were mentioned for systems with zinc, cadmium and indium. In the evaluation of their results the authors employed the method of the table difference. The calculation of the consecutive constants was carried out according to the interpolation formula by Newton. M. A. Chepelevtskiy held a lecture on "pH Measurement Method of the Solutions in Combination With the System Analysis of the Solubility Diagram of the System Cu^{2+} -HCl - H_2O in Investigating Complex Copper Compounds in Saturated Solutions". It was found that the substance at the bottom of the liquid is more basic than the solution; furthermore, the increased acidity of the solution from the viewpoint of the formation of hydroxy-chloro complexes in the solution was explained. V. I. Kuznetsov opened the discussion with his lecture; he pointed out the necessity of utilizing the concepts worked out in the investigations of the polymerization in organic chemistry in the chemistry of polynuclear complexes. A. A. Grinberg thinks that the new approach of the hydrolysis

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investigation as developed by the Scandinavian school is of high value. He also pointed to the necessity of studying the kinetics of the polymerization process and a quantitative determination of the strength of the polymers. A. K. Babko pointed out that the study of the polymer structure was necessary. N. P. Komar' mentioned in his lecture that the rather widely spread polymerization type according to the scheme "nucleus + chain members" is not obtained in all cases. The following scientists took part in the discussion: V. N. Tolmachev, A. V. Ablov, I. S. Mustafin, I. V. Tananayev and K. B. Yatsimirskiy. A. K. Babko then discussed in his lecture "Methods of Determining the Dissociation Constant of the Complex Groups in Solutions" the main principles of determining the instability constants. N. P. Komar' discussed in his lecture "Calculation Methods of the Instability Constants of the Complex Compounds According to Experimental Data" the possibilities of using the known calculation methods of the instability constants for various cases of the complex formation in solution. If several mononuclear complexes are formed the displacement method by Abegg and Bodlender (completed by

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A. K. Babko) cannot be recommended for the calculation of the instability constant. The lecturer discussed the dissolution methods of the polynomials proposed by B'yerrum, Leden, Rossoti, Sketchard, Edsolloy and other authors. The constants calculated in this way are not very accurate. It was proved that the method of successive approximations can lead to wrong conclusions as to the chemical processes taking place in the system investigated. The most probable value of the physical constants can be obtained by the method of the least squares. B. V. Ptitsyn, Ye. N. Tekster and L. I. Vinogradova described the determination methods of the instability constants of the oxalate complexes of niobium, uranium and iron which are based on the investigation of the equilibrium displacement of the complex formation by silver ions. N. K. Bol'shakova, I. V. Tananayev and G. S. Savchenko held a lecture on "The Role of the Time Factor in the Investigation of the Complex Formation". In the discussion on the lectures A. A. Grinberg mentioned that due to the slow adjustment of the equilibria the methods discussed of determining the instability constants (palladium and cobalt

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complexes) can often not be employed. A. V. Ablov pointed out the necessity of devising direct methods of proving the existence of intermediate forms in a step-wise complex formation. K. B. Yatsimirskiy mentioned that the instability constants of slowly dissociating complexes can be calculated from thermochemical data. L. P. Adamovich, A. M. Golub among others took part in the discussion on the lectures. A. K. Babko requested inclusion in the next conference on the chemistry of complex compounds a lecture in which various calculation methods of the instability constants should be discussed by the example of actual cases. This should clarify to which divergencies of the values of the constants different methods of evaluating the experimental data can lead. N. P. Komar' stressed that in the determination of the instability constants all chemical equilibria should be taken into account that render complex the complex formation process in the solution, especially the hydrolysis processes of the central ion and the addendum. In the lecture delivered by V. M. Peshkova and A. P. Zozulya "Application of the Distribution Method to the Investigation of the Stability Constants

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of Some Thorium Complex Compounds" results obtained from the experimental investigation of the distribution of thorium compounds in the systems: acetylacetone - benzene - water, and 2-oxy-1,4,-naphthoquinone - chloroform - water were given. From these data the instability constants of the thorium complexes with acetyl-acetone and 2-oxy-1,4-naphthoquinone were calculated. I. V. Tananayev, G. S. Savchenko and Ye. V. Goncharov held a lecture on the application of the solubility method in the determination of the stability of complex compounds in solutions. In this lecture also other methods of investigating complex formation processes in the solution were discussed (pH measurement, measurement of the optical density, as well as of the heat of mixing). B. D. Berezin held a lecture on the "Application of the Solubility Method in Studying the Phthalocyanine Complexes of Metals". He used the determined quantitative characteristics of the reaction of the transition of the phthalocyanides of cobalt, nickel, copper and zinc, as well as of the free phthalocyanine into the sulfuric acid solution for the theoretical reasoning, and as an experimental proof of the existence of

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π -bonds in the complexes investigated. These characteristics also served him as a proof of new electronic formulae of phthalocyanine and its complex derivatives. In the lecture delivered by I. L. Krupatkin on "The Method of the Two Solvents as a Method of Investigating the Formation and Properties of Organic Complexes" it was proved that this method makes it possible to determine the number of complexes formed in the system, their composition and relative stability. V. I. Kuznetsov, A. K. Babko, N. P. Komar', I. S. Mustafin and Ya. I. Tur'yan took part in this discussion. In the lecture delivered by A. A. Grinberg and S. P. Kiseleva on the complex palladium compounds (II) with a coordination number above four it was proved that in the case of a large chlorine and bromine ion excess complexes with the coordination number 5 are formed. The instability constants of these complexes were estimated. L. P. Adamovich mentioned a new manipulation in the spectrophotometric investigation of the complex compounds that can be used in systems with the formation (or predomination) of one single complex. This method makes it possible to determine the composition and instability constant

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of the complex. In the lecture delivered by K. B. Yatsimirskiy and V. D. Korableva the application of the theory of crystalline fields for the determination of the composition and structure of the chloride complexes of cobalt, nickel and copper according to the absorption spectra of these complexes was discussed. It was proved that in a hydrochloric acid concentration above 5 mole/liter in the solution there exists an equilibrium between the tetrahedric and octahedric form of the cobalt chloro complexes. Yu. P. Nazarenko proved in his lecture "The Application of Radioactive Isotopes in the Investigation of the Solvation Equilibrium in Solutions of Complex Compounds" the possibility of using data on the isotope exchange to clarify the structure of the complex and mechanism of the hydration processes. V. Klimov mentioned in his lecture the use of radioactive isotopes in the study of tin and antimony complexes in non-aqueous solutions. A. V. Ablov, V. N. Tolmachev, V. I. Kuznetsov and A. M. Golub took part in the discussion of the lectures. The usefulness of employing the theory of the crystalline fields in explaining the results obtained from the absorption spectra of the com-

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plex compounds was stressed. In the lecture delivered by I. A. Shek on "The Investigation of the Complex Formation by the Method of the Dielectric Permeability and the Polarization" the principles of the methods mentioned were presented. This method was employed for investigating the compounds of the type of the "affiliation" products. The lecture delivered by I. A. Shek and Ye. Ye. Kriss "Employing the Method of the Dielectric Constant for Investigating Complex Compounds of the Type of Crystal Solvates in Solutions" dealt with the investigation of the solvates of lanthanum and cerium chlorides with ketones, as well as with the study of the compounds formed in heterogeneous systems with tributyl phosphate and nitric acid. V. F. Toropova gave in her lecture "The Polarographic Method of Investigating the Complex Formation in Solutions" a survey of the applications of the polarographic method in the study of the complex compounds, and illustrated several fine characteristic features of this method. In the lecture delivered by T. N. Sumarokova "The Cryoscopic Method of Investigating the Complex Formation Reactions" a survey of the possibilities of the cryoscopic method was given, and its

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applicability in the study of several complex compounds of stannic chloride with organic substances was proved. A. M. Golub described the results of his investigations of thiocyanate complexes of several metals. A vivid discussion took place on the lectures held. Ya. A. Fialkov and Yu. Ya. Fialkov considered the cryoscopic method of investigating complex compounds to be of considerable value. K. B. Yatsimirskiy pointed out that the publication of the surveys on individual methods of investigating the complex formation reactions would be desired; this concerns especially the polarographic method. The cryoscopic method should be brought to a level that makes the calculation of the equilibrium constants of the processes to be investigated possible. The problem of the method of evaluating the experimental results becomes more and more important. Many scientists use the instability constants without taking into account the way in which they had been obtained. The calculation methods employed by A. M. Golub are one step back, as compared to those employed at present. In his lecture N. P. Komar' pointed out the extremely great importance of the mathematical

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evaluation of the results obtained, as well as of the plotting of curves. A. K. Babko suggested selecting one or two systems that are experimentally well investigated, and to evaluate the results obtained according to different methods so that it is possible to check and evaluate them. Ya. I. Tur'yan took part in the discussion. Ya. A. Fialkov discussed in his lecture "The Effect of the Solvent on the Complex Formation Process as Well as on the State of Equilibrium in the Solutions of Complex Compounds" the influence exerted by the solvents upon the molecular state, upon the solvation of the system components, upon the stabilization of the complexes formed in the system, upon the step-wise dissociation of the complexes and upon a number of other processes. The influence exercised by the dielectric constant upon the complex formation process was discussed. It was concluded that a direct relation does not exist, and that the chemical nature of the solvent must be taken into account. A. V. Ablov and L. V. Nazarova held a lecture on "The Spectroscopic Investigation of Nickel Cobalt 'Pyridinates' in Various Solvents". The instability constants of the complexes were determined and it was proved that the

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stability of the 'pyridinates' is changed in dependence on the solvent. Ya. I. Tur'yan in his lecture "The Influence of the Solvent Upon the Composition and Stability of Complex Ions" discussed the polarographic investigation method of the chloride and thiocyanate complexes of lead in aqueous ethanol solutions at different content of the non-aqueous solvent and at a constant ionic strength. A step-wise character of the complex formation was found as well as the instability constants of the complexes. The influence of the dielectric constant of the solution on the stability of the investigated complexes was proved. In the lecture by V. P. Vasil'yev on the "Investigation of Aquo Complexes in Mixed Solvents" the main attention was devoted to the necessity of the qualitative recording of the solvation effects in the complex formation. The applicability of the polarographic method in the determination of the composition and stability of the aquo complexes in mixed solvents was proved and experimental material on the thermodynamics of the dissociation of the cadmium-aquo complexes in aqueous ethanol solutions was mentioned. V. N. Tolmachev, V. I. Kuznetsov

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and I. V. Tananayev stressed in their lectures the necessity of a more complete and general investigation of the solvation processes. A. K. Babko and A. M. Golub pointed out the great importance of the investigations of the complex formation equilibria in non-aqueous solutions, and made several critical comments on the lecture by Ya. I. Tur'yan. The following scientists took part in this discussion: L. P. Adamovich, O. I. Khotsyanovskiy, A. P. Moskvina and A. G. Mustakhov. At the final meeting of the conference A. A. Grinberg, Corresponding Member, AS USSR, said in his speech that such a conference was very urgent. A detailed discussion of the determination methods of the composition of the complexes, as well as of the method used in the study of the quantitative characteristics of the stepwise complex formation was extremely useful for all who attended this conference.

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USCOMI-DC-60976

5(2), 5(3)
AUTHORS:

Tolmachev, V. N., Tul'chinskaya, A. Ya. SOV/75-14-3-2/29

TITLE:

Spectrophotometric Investigation of Reactions Which Are Important in Analytical Chemistry (Spektrofotometricheskoye issledovaniye reaktsiy, imeyushchikh znachenie v analiticheskoy khimii). Communication 2. Complex Compounds Formed by Copper Ions With Sodium Salt of 2-Nitroso-1-Naphthol-4-Sulfo Acid (Soobshcheniye 2. Kompleksnyye soyedineniya, obrazuyemye ionami medi s natriyevoy sol'yu 2-nitrozo-1-naftol-4-sul'fokisloty)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 3, pp 272-277 (USSR)

ABSTRACT:

The light absorption curves of solutions containing Cu^{2+} -ions and the compounds mentioned in the title, in the following termed nitroso salt, were taken at different pH. According to the method devised by I. I. Ostromyslenskiy (Ref 14) and P. Job (Ref 15) the stoichiometric coefficients for the reaction copper ion - nitroso salt were determined and two copper complex ions were found to be formed: CuR^+ and CuR_3^- .

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The molar extinction coefficients and the instability constants

Spectrophotometric Investigation of Reactions Which S07/75-14-3-2/29
 Are Important in Analytical Chemistry. Communication 2.
 Complex Compounds Formed by Copper Ions With Sodium Salt
 of 2-Nitroso-1-Naphthol-4-Sulfo Acid

of these complexes were determined. The copper complexes investigated proved to be more stable than the corresponding nickel compounds. The optical density and the equilibrium constant are given in tables 1 and 2 for 510, 520, 530, 540 $m\mu$. Table 3 indicates the equilibrium constants in dependence on pH. The high extinction coefficients of NiR_3^- and CuR_3^- , and the difference of their absorption curves are sufficient for a spectrophotometric determination of copper and nickel in common solution. The authors express their gratitude to N. P. Komar' for having supervised the investigation. There are 3 figures, 3 tables, and 22 references, 12 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
 (Khar'kov State University imeni A. M. Gor'kiy)
 SUBMITTED: December 18, 1955
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05832
SOV/76-33-10-30/45

5(4)

AUTHORS: Tolmachev, V. N., Lomakina, G. G.

TITLE: Spectrophotometric Analysis of the Reaction of Sodium-1,8-dioxy-2-(2'-oxyazobenzene)-3,6-naphthalene Disulphonate With Potassium, Strontium, and Barium Ions

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 10, pp 2302 - 2305 (USSR)

ABSTRACT: Previous articles dealt with the investigation of the dissociation constant (Ref 1) and the complex compounds with magnesium (Ref 2) and zinc (Ref 3) of the afore-mentioned dye. The authors investigated here the complex compounds with calcium, strontium, and barium with the help of spectrophotometry. The composition of the resultant complex compounds was determined at various pH-values by Ostromyslenskiy's method. The following complex compounds were obtained:

CaR_2^{6-} , SrR_2^{6-} , and BaR_2^{6-} . In order to determine the instability constants, the authors measured the optical densities at various concentrations of the metal ions and of the dye in various solvents. Measurements were made on a UM-2 monochromator. The

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Spectrophotometric Analysis of the Reaction of
Sodium-1,8-dioxy-2-(2'-oxyazobenzene)-5,6-naphthalene Disulphonate With
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constants (Table) were $5.3 \cdot 10^{-10}$ and $7.7 \cdot 10^{-8}$. The complex compounds lose in stability with decreasing electronegativity of the ions in the following order:

$\text{Ca}^{2+} > \text{Sr}^{2+} > \text{Ba}^{2+}$. There are 4 figures, 1 table, and 7 references, 5 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: March 28, 1958

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S/076/60/034/03/021/038
B005/B016

AUTHORS: Tolmachev, V. N.,
Lomakina, G. G. (Khar'kov)

TITLE: Spectrophotometric Investigation of the Reaction of the Sodium
Salt of 1,8-Dihydroxy-2-(2-hydroxyazobenzene)-3,6-naphthalene-
disulfonic Acid With Cadmium and Mercury Ions

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 627-632 (USSR)

TEXT: The dye sodium-1,8-dihydroxy-2-(2-hydroxyazobenzene)-3,6-naphthalene-di-sulfonate is used in complexometry as metal indicator. It behaves like a tribasic weak acid H_3R^{2-} . The authors have shown in previous papers that complexes of the composition $Me(HR)_2^{6-}$ are formed by this reagent with the ions of magnesium, calcium, strontium, barium, and zinc. In the present paper the authors describe the investigation of the reactions of the dye mentioned with the ions of cadmium and bivalent mercury. The investigations were carried out spectrophotometrically in the pH range 8 - 12 which was adjusted by means of an ammonia buffer. To determine the composition of the resultant complexes, the method by Ostromyslenskiy was used. The optical densities of the solutions at $\lambda = 620 \text{ m}\mu$ were measured for this purpose by means of an UM-2 monochromator. The concentrations of the equimolar initial solutions ranged from $1 \cdot 10^{-3}$ to $1.5 \cdot 10^{-3}$ moles/l. The investigations showed that under the present conditions the complex compounds $Cd(HR)_2^{6-}$ and $Hg(HR)_2^{6-}$, respectively, were

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Spectrophotometric Investigation of the Reaction
of the Sodium Salt of 1,8-Dihydroxy-2-(2-hydroxyazoben-
zene)-3,6-naphthalenedisulfonic Acid With Cadmium and
Mercury Ions

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formed. The instability constants of these complexes have the values $1.7 \cdot 10^{-8}$, and $2.1 \cdot 10^{-21}$, respectively. pH ~ 10 proved to be an optimum for the complex formation. Table 1 summarizes the results of calculation of the instability constant of the complex $\text{Cd}(\text{HR})_2^{6-}$ at pH 10.6 and a layer thickness $l = 0.05$ cm for various cadmium concentrations in the solution ($0.83 \cdot 10^{-4}$ - $3.3 \cdot 10^{-4}$ moles/l) at 3 different wavelengths (550, 560, 620 m μ). Table 2 shows the results of calculation of the instability constant of the complex $\text{Hg}(\text{HR})_2^{6-}$ at $l = 0.05$ cm and $\lambda = 550$ m μ for mercury concentrations from $0.38 \cdot 10^{-4}$ to $3.8 \cdot 10^{-4}$ moles/l, with pH values of between 9.2 and 9.7. The stability of the complexes $\text{Me}(\text{HR})_2^{6-}$ in the zinc subgroup of the periodic system was shown to increase in accordance with the increase in electronegativity in the order $\text{Cd} < \text{Zn} < \text{Hg}$. In the present communication a paper by N. P. Komar' (Ref 10) is referred to. There are 5 figures, 2 tables, and 10 references, 9 of which are Soviet.

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Spectrophotometric Investigation of the Reaction
of the Sodium Salt of 1,8-Dihydroxy-2-(2-hydroxy-
azobenzene)-3,6-naphthalenedisulfonic Acid With
Cadmium and Mercury Ions

S/076/60/034/03/021/038
B005/B016

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy) ✓

SUBMITTED: June 20, 1958

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S/153/60/003/005/002/016
B013/B058

AUTHORS: Tolmachev, V.N., Bashkinskiy, Ye.V.

TITLE: Spectrophotometric Determination of Iron in Heat-resistant Alloys on Nickel Basis With the Aid of Nitroso R-salt

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i kimicheskaya tekhnologiya, 1960, Vol. 3, No. 5, pp. 815 - 818

TEXT: The possibility of using nitroso R-salt for the determination of iron in the presence of the metal ions nickel, chromium, molybdenum, tungsten, vanadium, titanium, and cobalt, without the application of special reducing agents, was studied in this paper. The spectrometer of the type CF-4 (SF-4) was used. Nitroso R-salt was prepared by a known method (Ref.5). Optical densities of a number of solutions with a 5.2 pH with variable iron concentration in the presence of a 20-fold nitroso R-salt excess were investigated in order to check Beer's law. The medium was prepared by means of acetate buffer. Fig.1 shows a satisfactory fulfillment of the law. From the absorption curves (Fig.2) for nitroso R-salt and its complexes with iron- and nickel ions it results that nitroso R-salt

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does not absorb in the red spectral range. The absorption curve for the complex compound shows a maximum at $\lambda = 720 \text{ m}\mu$ with $\epsilon = 18250$. The effect of foreign ions on the optical density of solutions (at $\lambda = 720 \text{ m}\mu$) containing the iron complex with nitroso R-salt was studied (Table 1). It was ascertained that the strongest effect is exerted by nickel, the main component of the alloys. It forms complex compounds with nitroso R-salt. Experiments showed, however, that when increasing the nitro R-salt excess to the 100-fold, nickel does not hamper the determination of iron, even at a ratio of 80 : 1. The disturbance by chromium ions only becomes apparent at $\text{Cr} : \text{Fe} > 6 : 1$, and by molybdenum ions at $\text{Mo} : \text{Fe} > 12 : 1$. A certain effect is also exerted by tungstate- and vanadate ions. Tantalum- and niobium ions do not react with nitroso R-salt, do not absorb, and should not disturb the iron determination. The admissible $\text{Me} : \text{Fe}$ ratio was determined on the basis of measurements of optical densities at $\lambda = 720 \text{ m}\mu$. It is also valid for operation in the wavelength range of 620 - 780 $\text{m}\mu$, i.e., it may be considered when using photocolormeters with sulfur-silver elements. Three samples of alloys on nickel basis with different iron

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contents were analyzed (Table 2) in order to check the method. It was established that nitroso R-salt may be used for the determination of iron in alloys on nickel basis of complicated composition. No special reducing agents are necessary. The main mass of nickel can be separated quickly and easily, well reproducible results being obtained. Errors do not exceed 2 - 3% relatively. There are 2 figures, 2 tables, and 5 references: 1 Soviet, 3 US, and 1 Japanese.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo. —
Kafedra tekhnicheskoy khimii (Khar'kov State University imeni
A. M. Gor'kiy. Department of Technical Chemistry)

SUBMITTED: March 14, 1959

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TOLMACHEV, V. M.; LOMAKINA, G. G. (Khar'kov)

Spectrophotometric study of reactions between sodium 1,8-dihydroxy-(2-hydroxyazobenzene)-3,6-naphthalene disulfonate and cadmium and mercury ions. Zhur. fiz. khim. 34 no.3:627-632 Mr '60.

(MIRA 13:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Cadmium compounds) (Mercury compounds)

TOLMACHEV, V.N.; BASHKINSKIY, Ye.V.

Spectrophotometric determination of iron in heat-resistant
nickel-based alloys by means of nitroso-R-salt. Izv. vys.
ucheb. zav; khim. i khim. tekhn. 3 no. 5:815-818 '60.
(MIRA 13:12)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
Kafedra tekhnicheskoy khimii.
(Iron-nickel alloys--Spectra) (Iron--Analysis)

LOMAKINA, G.G.; TOLMACHEV, V.N.

1,8-Dihydroxy-2-(2'-Hydroxyazobenzene)-3,6-naphthalene
sodium disulfonate as a possible reagent for the photometric
determination of magnesium, zinc, and cadmium. Izv. vys.
ucheb. zav; khim. i khim. tekhn. 3 no. 5:819-822 '60.
(MIRA 13:12)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
Kafedra tekhnicheskoy khimii.
(Magnesium--Analysis) (Zinc--Analysis)
(Cadmium--Analysis)

TOLMACHEV, V.N.; PRIKHOL'KO, L.S.

Spectrophotometric determination of chromium in the form of chromic ions in high-chromium steels. Izv.vys.ucheb.zav.; khim.i khim.tekh.
3 no.6:985-987 '60. (MIRA 14:4)

1. Khar'kovskiy gosudarstvennyy gosudarstvennyy universitet imeni
A.M.Gor'kogo, kafedra tekhnicheskoy khimii.
(Chromium--Analysis) (Chromium steel)

TOLMACHEV, V.N.; LOMAKINA, G.G.; SERPUKHOVA, L.N.

Relation between the absorption spectra of complex compounds
and their stability in aqueous solutions. Ukr.khim.zhur. 27
no.5:584-592 '61. (MIRA 14:9)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Complex compounds—Spectra)

TOLMACHEV, V.N.

Graphic interpretation of the Ostromyslenskii-Job method.
Ukr.khim.zhur. 27 no.5:559-566 '61. (MIRA 14:9)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Complex compounds) (Solution (Chemistry))

BAZHENKO, A.S.; TURCHENOV, V.A.

Ternary complex compounds in the system metal ion-nitronethiocyanogen ion. Ukr.khim.zhur. 27 no.6:732-739 '61.
(MIRA 14:11)

1. Khar'kovskiy politekhicheskii institut im. V.I.Lenina.
(Complex compounds)

BABENKO, A.S.; TOLMACHEV, V.N.

Complex formation in the system trivalent ferric ion - nitron - thiocyanate. Part 3: Isolation and study of the extractibility of nitron - thiocyanate complex of iron by means of dichloroethane. Ukr.khim.zhur. 28 no.2:139-145 '62. (MIRA 15:3)

1. Khar'kovskiy politekhnicheskii institut im. V.I.Lenina.
(Iron compounds) (Nitron) (Thiocyanates)

BABENKO, A.S. [Babenko, O.S.]; TOLMACHEV, V.N. [Tolmachov, V.M.]

Ternary complex compounds in the system metal ion - nitron -
thiocyanogen ion. Dop. AN URSR no.3:394-397 '62. (MIRA 15:5)

1. Khar'kovskiy politekhnicheskij institut. Predstavleno
akademikom AN USSR A.K.Babko.

(Systems (Chemistry)) (Complex compounds)

S/190/63/005/004/006/020
B101/B220

AUTHORS: Tolmachev, V. N., Lomako, L. A., Gurskaya, L. A.

TITLE: Complex compounds of polymethacrylic hydrazide with some metal ions

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 4, 1963, 512-518

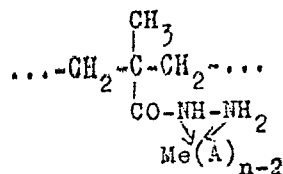
TEXT: When polymethacrylic acid (PMA) is boiled with $N_2H_4 \cdot H_2O$, the PMA hydrazide is obtained. Mass polymerized PMA yielded insoluble PMA hydrazide but emulsion polymerized PMA the soluble hydrazide. The molecular weight was 100,000 - 400,000; the nitrogen content was 12 - 17 % in the soluble PMA hydrazide and 1.5 - 2.0 % in the insoluble compound. The content of hydrazide groups in the polymer was determined by potentiometric titration with sodium nitrite and found to be 1 mg-equiv. per g of insoluble polymer. The mean exchange capacity for hydrogen was 1.9 mg-equiv/g. The viscosity does not follow the linear rule $\eta_{sp}/c = f(c)$, but decreases with time owing to desaggregation and with increasing pH owing to coiling of the molecules. From PMA hydrazide solutions or on the surface of the insoluble polymer precipitations were obtained with Ni, Co, Cr, Zn or Cd

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sulfates, which contained N as well as metal ions and whose reflexion spectra differed from those of the metal hydroxides. In ammoniac solution no precipitations formed with Co, Ni, Zr or Cd ions. The precipitations obtained are polychelates of the general formula:



where Me is the metal ion, Λ is H_2O , NH_3 , OH etc., and n is the coordination number of the metal. There are 5 figures and 2 tables.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
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SUBMITTED: September 15, 1961

Card 2/2

TOLMACHEV, V.N.; LOMAKO, L.A.; GURSKAYA, L.A.

Complex compounds formed by polymethacrylic acid hydrazide with
some metal ions. Vysokomol. soed. 5 no.4:612-518 Ap '63.

(MIRA 16:5)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
(Methacrylic acid) (Chelates)

BAHENKO, A.S.; TOLMACHEV, V.N.; DZIZIN, A.N.

Sulfate salts of nitron. Ukr. khim. zhur. 29 no.7:702-708 '63.
(MIRA 16:8)

1. Khar'kovskiy politekhnicheskii institut im. V.I. Lenina.
(Nitron)

BABENKO, A.S.; TOLMACHEV, V.N.

Composition and extractibility of nitron-thiocyanate complexes
of some metals. Trudy Khim. anal. khim. 14:160-171 '63.
(MIRA 16:11)

BABENKO, A.S.; TOIMACHEV, V.N.

Complex formation in the system cobalt ion - nitron-
rhodanide. Part 2. Separation and study of extractibility
by dichloroethane of the nitron-rhodanide complex of cobalt.
Ukr. khim. zhur. 28 no.1:26-32 '62. (MIRA 16:8)

1. Khar'kovskiy politekhnicheskiy institut im. V.I. Lenina.

BEZUGLYY, Vasiliy Danilovich; TOLMACHEV, V.N., dots., otv. red.;
BAZILIYANSKAYA, I.L., red.

[Polarography in chemistry and polymer technology] Polarografiia v khimii i tekhnologii polimerov. Khar'kov, Izd-vo Khar'kovskogo univ., 1964. 163 p. (MIRA 17:11)

LAVRUSHIN, V.F.; DZYUBA, V.F.; TOIMACHEV, V.D.

Absorption spectra of some α,β -unsaturated aromatic ketones and products of their reaction with iron chloride. Part 1. Zhur. ob. khim. 35 no.1:95-103 Ja '65

(MIRA 1841)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gorkogo.

LAVRUSHIN, V.F.; TOLMACHEV, V.N.; SINYAGOVSKAYA, L.A.; TRUSEVICH, N.D.

Interaction of α,β -unsaturated ketones with trichloroacetic acid. Zhur. ob. khim. 35 no.9:1534-1538 S '65. (MIRA 18:10)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.

TOIMACHEV, V.N.; LOMAKO, L.A.; KLYUCHAREVA, N.A.

Complex-forming processes on carboxyl-containing cation exchangers.
Ukr. khim. zhur. 31 no.4:321-328 '65. (MIRA 18:5)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.

TOLMACHEV, V.N.; BOBEROV, O.F.; LAVRUSHIN, V.F.

Reaction of α, β -unsaturated ketones with trichloroacetic
acid. Part 2. Zhur. ob. khim. 35 no.10:1841-1844 O '65.

(MIRA 18:10)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.

LAVRUSHIN, V.F.; TOLMACHEV, V.N.; TRUSEVICH, N.D.; SINYAGOVSKAYA, L.A.

Interaction of α, β -unsaturated ketones with trichloroacetic acid. Zhur. ob. khim. 35 no.10:1730-1734 O '65.

(MIRA 18:10)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.

TOLMACHEV, V.N.; KOLESNIKOVA, B.M.; BOBOK, Ye.B.

Acidic and other physicochemical properties of polystyreneazo-
salicylic acid, polystyreneazocresol, and polystyreneazophenol.
Vysokom. soed. 7 no.11:1941-1945 N '65. (MIRA 19:1)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
Submitted December 22, 1964.

BOBEROV, O.F.; TOLMACHEV, V.N.; LAVRUSHIN, V.F.

Interaction between α,β -unsaturated ketones with ferric chloride. Zhur.ob.kh.L. 35 no.12:2130-2134 D '65.

(MIRA 19:1)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
Submitted September 2, 1964.